REMARKS

Please find attached drawings with requested corrections marked in red.

Claims 1-9 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite.

Claims 1, 4, 5, 7 and 9 were rejected under 35 U.S.C. 102(a) as being anticipated by Ohtani; claims 2 and 6 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtani as applied to claims 1, 4, 5, 7 and 9, and further in view of Ishihara.

Claim 1 of the instant invention recites a method for forming a smooth interface between a silicon surface and a dielectric layer. The method comprises providing a silicon substrate with an upper surface. A amorphous region is formed in the upper surface by exposing the upper surface to a halogen species. Following the formation of this amorphous region, a dielectric layer is formed on the amorphous region.

The Ohtani et al patent (U.S. 6, 348, 367) to which the examiner refers describes a method for manufacturing a semiconductor device. The examiner refers to the silicon oxide layer 209 as being formed on am amorphous region. In fact the Ohtani et al patent describes a method for crystallizing the initial amorphous layer. Described in col. 9, lines 5-41 is the process for crystallizing the initial amorphous layer and forming the silicon oxide layer 209 (to which the examiner refer) on the converted silicon layer. Therefore not only does the Ohtani et al. patent not teach forming a silicon oxide layer on amorphous layer, it specifically teaches away from this by describing a process for first converting the amorphous layer. Because the Ohtani et al. patent teaches away from the instant invention it cannot be properly combined with the Ishihara et al. patent (U.S. 6,240,610). Claims 1-9 are therefore allowable over the Ohtani et al. patent either singly or combined with the Ishihara et al patent.

Applicant appreciates the indication that Claims 3 and 8 would be allowable if rewritten to overcome the rejection under 35 U.S.C. 112, second paragraph, set forth in the Office Action and to include all of the limitations of the base claim and any intervening claims.

Claims 10 and 11 were added to the instant invention. Claim 10 recites the limitations of claims 1 and 3 of the instant invention and is allowable over the cited art. Claim 11 depends on claim 10 and is also allowable over the cited art.

In light of the above, it is respectfully submitted that the present application is in condition for allowance, and notice to that effect is respectfully requested.

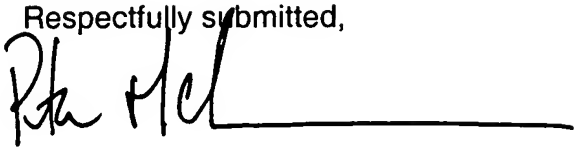
While it is believed that the instant response places the application in condition for allowance, should the Examiner have any further comments or suggestions, it is respectfully requested that the Examiner contact the undersigned in order to expeditiously resolve any outstanding issues.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **"Version with Markings to Show Changes Made."**

To the extent necessary, Applicant petitions for an Extension of Time under 37 CFR 1.136. Please charge any fees in connection with the filing of this paper, including

extension of time fees, to the deposit account of Texas Instruments Incorporated, Account No. 20-0668.

Respectfully submitted,



Peter K. McLarty
Agent for Applicant
Reg. No. 44,923

Texas Instruments Incorporated
P.O. Box 655474, MS 3999
Dallas, TX 75265
(972) 917-4258

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2. (Amended) The method of claim 1 further comprising removing a [thin] dielectric layer from said upper surface prior to forming said amorphous region.

3. (Amended) The method of claim 1 wherein said forming said amorphous region further comprises:

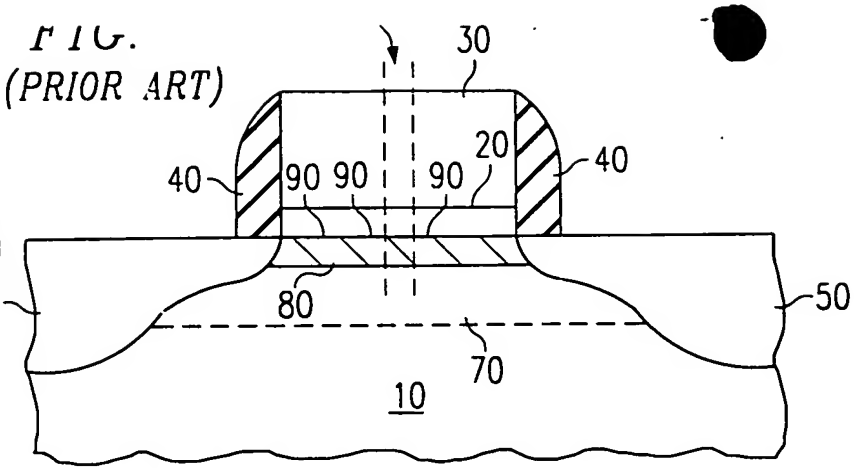
exposing a chlorine containing gas to UV radiation to form excited chlorine species;

heating said upper surface to a temperature between [50oC] 50°C and [250oC] 250°C; and

exposing said heated upper surface to said excited chlorine species.

6. (Amended) The method of claim 1 further comprising removing a [thin] dielectric layer from said upper surface prior to forming said amorphous region.

FIG.
(PRIOR ART)



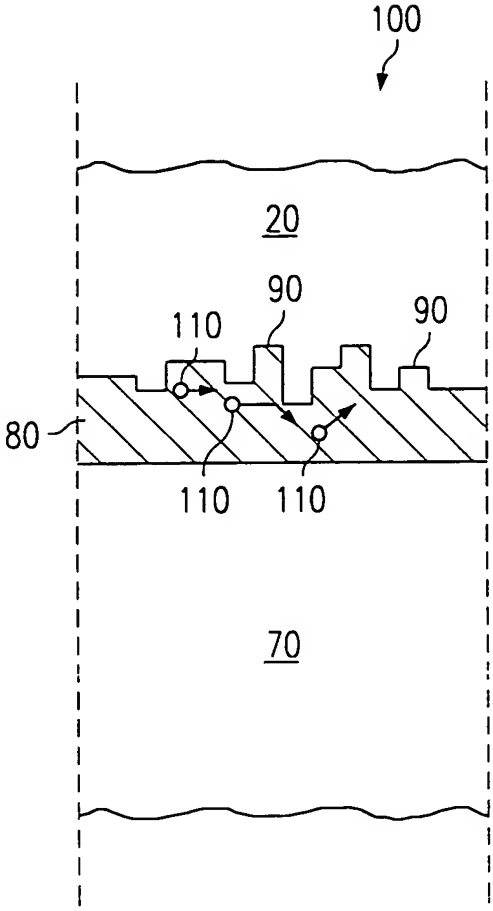


FIG. 2
(PRIOR ART)

existing

REMOVING ~~ENCRUSTING~~ SURFACE DIELECTRIC FILM — 110

EXPOSE SILICON SURFACE TO HALOGEN SPECIES TO FORM ~~AMORPHORES~~ REGION — 120

FORM A PROTECTIVE SILICON OXIDE ~~CAPPING~~ LAYER — 125

FORM GATE DIELECTRIC LAYER ON ~~AMORPHORES~~ REGION BY GROWTH OR DEPOSITION — 130

amorphous

capping

amorphous

FIG. 3

approved
hle
1/28/03